

**Abstract of the Invention****METHODS AND COMPOSITIONS FOR ULTRA LOW  
COPY NUMBER ANALYTE DETECTION**

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The present invention is directed to methods and compositions for signal amplification used in analyzing large quantities of a DNA, protein, cellular or RNA sample to detect a target analyte. The methods of the present invention, Zymogen Mediated Signal Amplification, ZMSA, minimize the occurrence of false positive and false negative conclusions in diagnostic results without DNA  
10 Amplification or reverse transcriptase reactions. The signal amplification methods of the present invention employ highly increased signal production capabilities of an enzyme and its  
15 substrate. Embodiments of the present invention may take the form of an autocatalytic reaction or a synthetic enzyme.

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